Patent claims

1. A method for producing CT images of a partially cyclically moving examination object, preferably of a patient (P), in which:

1.1. in one pass the examination object is scanned by a spiral movement of at least one focus (1) and at least one detector (2) situated opposite,

1.2. the scanning of the examination region is performed at a relative feed rate (v_t) between gantry (1, 2) and couch (L), and

1.3. a three-dimensional image of the absorption coefficients is determined with the aid of a multiplicity of sectional planes of an examination volume on the basis of the data obtained by scanning,

characterized in that

1.4. at least one static object area and at least one at least partially moving object area are determined with reference to the examination object (P) with the aid of cyclical intrinsic movement, and

1.5. during a pass when scanning the examination object (P) a first feed rate (v_1) is used in the at least one moving object area, and another, second feed rate (v_2) is used in the at least one static object area.

2. The method as claimed in the preceding claim 1, characterized in that a higher feed rate (v_2) serves for scanning the static object area, and a lower feed rate (v_1) serves for scanning the moving object area.

3. The method as claimed in the preceding claim 2, characterized in that the position

of the beating heart (H) is determined in order to divide the examination object (P) into static and moving object areas.

4. The method as claimed in the preceding claim 3, characterized in that the determination of static and moving object areas before the scan is performed by means of at least one topogram recording (T).

5. The method as claimed in the preceding claim 3, characterized in that the determination of static and moving object areas before the scan is performed by means of at least one optical recording, preferably with subsequent manual subdivision of the areas.

6. The method as claimed in one of the preceding claims 1 to 5, characterized in that the transition between the feed rates is performed with a prescribed maximum acceleration.

7. The method as claimed in the preceding claim 1, characterized in that the determination of moving and static object areas is performed during the scan, and a low feed rate (v_1) is selected upon detection of a cyclical movement, and a higher feed rate (v_2) is selected upon detection of a static state.

8. The method as claimed in one of the preceding claims 1 to 7, characterized in that the detection of the cyclical movement of the subarea of the examination object (P) is performed in the current scanning area by virtue of the fact that the intensity measurement of at least one pair of rays on a common ray axis, preferably of two oppositely directed rays, is compared to two consecutive instants.

9. The method as claimed in one of the preceding claims 1 to 8, characterized in that during scanning at a low feed rate (v_1) the movement of the heart (H) is temporally resolved by means of ECG leads and is divided into movement phases (B) and rest phases (R), only detected data from the rest phase (R) being used to compile images.

10. The method as claimed in one of the preceding claims 1 to 9, characterized in that use is made when scanning the moving area of a CT spiral reconstruction method that uses only detector data from a specific cycle rest phase of the cyclically moving area, whereas during scanning of the static area use is made of a spiral reconstruction method that uses all the measured detector data for the reconstruction.

11. The method as claimed in one of the preceding claims 1 to 10, characterized in that the intensity of radiation emanating from the at least one focus is matched to the respectively current feed rate (v_t).

12. The method as claimed in the preceding claim 11, characterized in that the intensity of radiation is matched by controlling/regulating a tube current.

13. A CT unit for scanning an at least partially cyclically moving examination object, preferably a patient, having a beam emanating from at least one focus (1), and having at least one detector (2) of planar design and with a multiplicity of distributed detector elements for detecting the rays of the beam (3), the at least one focus (1) being moved relative to the

examination object (P) with a feed rate (v_t) on a spiral focal track (S) revolving about the examination object, characterized in that at least means for carrying out the method in accordance with one of the preceding method claims are included.

14. The CT unit as claimed in claim 13, characterized in that said means are implemented at least partially by programs or program modules.

15. The CT unit as claimed in one of claims 13 to 14, characterized in that an apparatus is provided for controlling the feed rate (v_t) as a function of scanning area.